

**NOVEMBER/DECEMBER 2024**

**GECH34A/DECH34A — SCIENTIFIC  
RESEARCH METHODOLOGY**

**Time : Three hours**

**Maximum : 75 marks**

**SECTION A — (10 × 2 = 20 marks)**

**Answer ALL questions.**

1. Explain citation index.
2. What is the need for patents?
3. What is the principle of Soxhlet extraction?
4. Define sublimation.
5. State errors.
6. What is meant by normal distribution curve?
7. Give the principle of the student test.
8. Write a note on significant figures.
9. What are appendices in research?
10. Give some examples of commonly used abbreviations.



SECTION B — ( $5 \times 5 = 25$  marks)

Answer ALL questions.

11. (a) Explain the points to be kept in mind while choosing a research problem.

Or

- (b) How will you locate an article in chemical abstract using various indices? Explain with example.

12. (a) Explain the physical properties used in analysis and methods of separation prior to analysis.

Or

- (b) (i) Explain the safety measures to be followed while working with the acids.  
(ii) What are the precautions should be taken when working with toxic substances?

13. (a) Describe any two methods adopted to eliminate determinate errors.

Or

- (b) Describe the two methods adopted to determine the accuracy.

14. (a) Explain the 'Least square' principle involved in obtaining the best straight line from a given set of data.

Or

- (b) Explain the "t" test and the "F" test.

15. (a) How do you structure chapters in a thesis?

Or

- (b) Discuss how to write a thesis step by step.

SECTION C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. What do you meant by citation technique? Explain various forms of citation with examples.

17. Give an account on:

- (a) Vacuum Sublimation  
(b) Distillation.

18. Briefly explain the various types of errors.

19. Explain the following:

- (a) Significant figures  
(b) Criteria for rejection of an observation.

20. What is the logic behind the presentation of data in the form of tables? Explain various forms and components of tables used in dissertations.